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PATENT APPLICATION

ATTORNEY DOCKET NO. 10991251-2

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): David W. Boyd

Serial No.: 09/257,459 (parent)

Examiner: Gibbs, Heather D.

Filing Date: 02/25/99 (parent)

Group Art Unit: 2622

Title: DIGITAL IMAGE SCANNER WITH A VARIABLE APERTURE LENS AND MULTIPLE
SCANNING SPEEDS

REMARKS IN CONJUNCTION WITH CONTINUATION APPLICATION

THE ASSISTANT COMMISSIONER OF PATENTS
Washington, D.C. 20231

Sir:

REMARKS

The present application is a continuation of U.S. application serial number 09/614,579 (filed 07/12/2000), which is a continuation-in-part of serial number 09/257,459 (filed 02/25/99, abandoned).

The original application (09/257,459) was filed with claims 1-4. The CIP (09/614,579) added new claims 3-4 with original claims 3-4 renumbered as 5-6. In the CIP (09/614,579), new material was added to the specification and one inventor, Kevin J. Youngers, was added. Claims 3-4 in the CIP (09/614,579) were allowed, and the issue fee is being paid concurrently with this continuation. In this continuation, claims 1-4 as submitted in the original application (09/257,459) are re-submitted, and Kevin J. Youngers is being deleted as an inventor.

In the parent application, in paper 5, claims 1 and 6 (now 1 and 4 in the present application) were rejected under 35 U.S.C. § 103 as allegedly unpatentable over U.S. Patent Number 5,019,855 (Lam) in view of U.S. Patent Number 4,714,960 (Laakmann). Applicant respectfully traverses.

Claims 1 and 4 specify an optical image scanner, and scanning is part of the claims. Lam discloses a film printer, not an image scanner.

Claims 1 and 4 specify an iris having at least two aperture sizes. Lam and Laakmann, individually or combined, do not teach or suggest an iris. There is no iris in either Lam or Laakmann. The Merriam-Webster's Collegiate Dictionary (online at www.m-w.com) includes the following definition for "iris": "a similar device with a circular opening that can be varied in size". Lam shows an aperture 8, but there is no teaching or suggestion that the size is variable. Lam also discusses that the shutter may have an aperture comprising a slit or rectangle, but there is no teaching or suggestion that the aperture in the shutter can be varied in size. Laakmann has a cold stop 42 that appears to have an aperture, but there is no teaching or suggestion that the aperture can be varied in size.

The examiner cites Lam, column 5, lines 59 as specifying an iris with first and second aperture sizes. The cited text does not support the contention. Lam, column 5, the sentence starting at line 59 is as follows: "It should be noted that the falloff is less with a

higher aperture setting.” In context, the cited sentence is in a discussion of enlarging lenses in general, and states a general relationship between aperture size and illumination falloff. It does not teach or suggest a variable aperture iris in the printing system being discussed in Lam, or in particular, does not teach or suggest a variable aperture iris in an image scanner. The examiner also cites Lam, column 3, lines 37-49. The cited discussion relates to a general relationship between aperture size and exposure time, but does not teach or suggest a variable aperture iris in the printing system being discussed in Lam, or in particular, does not teach or suggest a variable aperture iris in an image scanner. The examiner also cites Lam, column 3, lines 46-47. The cited text describes a general physical relationship between aperture size and exposure time of film, but does not teach or suggest a variable aperture iris in the printing system being discussed in Lam, or in particular, does not teach or suggest a variable aperture iris in an image scanner.

The examiner also cites Laakmann, column 5, lines 16-23. The cited discussion states that the location and size of an aperture in the system of Laakmann can be designed to adapt a standard array to the system of Laakmann, but does not teach or suggest a variable aperture iris in the IR camera being discussed in Laakmann.

Claims 1 and 4 further specify that the iris is set to the first aperture size when scanning at a first speed and the iris is set to the second aperture size when scanning at a second speed. Lam and Laakmann, individually or combined, do not teach or suggest an iris aperture size that varies with scanning speed. In Lam, which as a printer is irrelevant to scanning speed, instantaneous shutter speed is a function of distance from the optical axis of the lens (light falloff). There is no teaching or suggestion of aperture size changing with shutter speed. In Laakmann, column 8, lines 23-25, the image generation rate is fixed at a rate compatible with television standards. Accordingly, Laakmann expressly teaches away from variable scanning speeds.

In the parent application, in paper 5, claim 2 was rejected under 35 U.S.C. § 103 as allegedly unpatentable over Lam and Laakmann and further in view of U.S. Patent Number 5,270,825 (Takasugi). Applicant respectfully traverses.

Claim 2, dependent on claim 1, further specifies that a modulation transfer function (MTF) is different for the two aperture sizes. Specifically, for claim 2, the MTF with a small aperture is better than the MTF for a larger aperture. Lam, Laakmann, and Takasugi,

individually or combined, do not teach or suggest a MTF for a small aperture that is better than the MTF for a larger aperture. Lam and Laakmann do not discuss MTF. Takasugi expressly teaches the opposite relationship from claim 2. That is, in Takasugi, the MTF is worse when the aperture is small (column 4, lines 44-45).

In the parent application, in paper 5, the examiner cites Takasugi column 4, lines 34-36. Column 4, lines 34-36 are not relevant to claim 2.

In the parent application, in paper 5, claim 5 (claim 3 in the present application) was rejected under 35 U.S.C. § 103 as allegedly unpatentable over Lam in view of U.S. Patent Number 5,301,168 (Miller). Applicant respectfully traverses.

Applicant respectfully submits that Miller is not relevant to the present application. MPEP 2141.01(a) requires that the art must be in the field of applicant's endeavor, or reasonable pertinent to the particular problem with which the applicant was concerned. Miller, disclosing an ultrasound transducer, is not in the field of applicant's endeavor and is not reasonably pertinent to the particular problem with which the applicant was concerned. The word aperture in Miller refers to the width, or subset of the width, of a solid transducer, and not to the size of an opening in an iris.

Claim 3 specifies selecting a sampling rate, and then scanning using an aperture size that is dependent on which sampling rate is selected. Lam and Miller, individually or combined, do not teach or suggest selecting a sampling rate and scanning using an aperture size that is dependent on which sampling rate is selected. Note, in the specification of the present application, page 1, lines 4-5, sampling rate refers to a spatial measurement, that is, pixels per inch, or pixels per mm. There is no discussion of sampling rate in Lam. In Miller, the focal point is moved relative to the transducer array by changing the aperture (see, for example, column 2, lines 17-21, and lines 40-46). That is, for each selected focal distance, aperture and frequency are adjusted (figures 10B and 10C). At column 3, lines 1-2, resolution improves with higher frequency, but there is no selection of resolution. At column 2, line 62, through column 3, line 12, resolution is improved by the design of the relative sizes of elevation and azimuth apertures, and by choice of frequency, but again, there is no selection of resolution. That is, one does not select resolution, and adjust aperture based on resolution, but instead one selects focal distance, and aperture and

frequency are adjusted to provide the focal distance, and resolution is a result of the selection of aperture and frequency.

In the parent application, in paper 5, the examiner cites Lam, column 5, line 59 and column 3, lines 37-49. The remarks above in conjunction with the same cites for claims 1 and 4 are equally applicable to claim 3. In paper 5, the examiner cites Miller, column 11, lines 12-17. The cited text says that frequency can be selected based on aperture size. The examiner also cites column 13, lines 3-35. The cited text says that sometimes two scanlines are transmitted, and for lower steering angles, one scanline is transmitted. Other than the fact that the word "aperture" appears in line 27, applicant fails to see any relevance of the cited text to claim 3. The examiner also cites column 14, lines 16-31. The cited lines discusses deletion of unwanted information to improve frame rate. None of the cited lines support the examiner's contention. None of the cited lines teach or suggest selection of sampling rate, and adjusting aperture in response.

This application is considered to be in condition for allowance and such action is earnestly solicited.

Respectfully submitted,

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